

## WHAT IS CLAIMED IS:

1. An apparatus for igniting a combustible medium in a tubular member in an earth borehole in a subterranean formation comprising:
  - an igniter assembly, said igniter assembly comprising:
    - 5 a support;
    - a catalytic material carried by said support, said catalytic material comprising a substance which reacts with a hydrogen-containing gas in the presence of an oxidizing gas to produce an exothermic reaction and a temperature sufficient to cause auto ignition of said hydrogen-containing
    - 10 gas;
    - a source of said hydrogen-containing gas; and
    - a source of said oxidizing gas; and
  - a tubular member disposable in said borehole, said igniter assembly being positioned in said tubular member.
- 15 2. The apparatus of Claim 1, wherein said igniter assembly comprises an elongate tubular housing having a first end and a second end, said catalytic material being disposed in said tubular housing, said hydrogen-containing gas and said oxidizing gas being introduced into said first end of said housing, said
- 20 hydrogen-containing gas being introduced under pressure into said tubular housing.

3. The apparatus of Claim 2, wherein said catalytic material is in the form of a tube disposed in said tubular housing.
4. The apparatus of Claim 3, wherein said tube of catalytic material 5 comprises a platinum group metal carried on a metallic foam structure.
5. The apparatus of Claim 3, wherein said source of hydrogen-containing gas comprises a feed tube, said feed tube having an end opening axially displaced from said tube of catalytic material and there is a Venturi-type 10 tube attached to said tubular housing and facing said end opening of said feed tube.
6. The apparatus of Claim 1, wherein said source of air comprises ambient air.

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7. The apparatus of Claim 1, wherein said source of air comprises forced air.
8. The apparatus of Claim 1, wherein there are a plurality of igniter 20 assemblies positioned in said tubular member and staggered there along, each of said igniter assemblies being associated with a burner.

9. An apparatus for igniting a combustible medium issuing from an opening in a flare stack comprising:

an igniter assembly, said igniter assembly comprising:

a support;

5 a catalytic material carried by said support, said catalytic material comprising a substance which reacts with a hydrogen-containing gas in the presence of an oxidizing gas to produce an exothermic reaction and a temperature sufficient to cause auto ignition of hydrogen-containing gas; a source of said hydrogen-containing gas; and

10 a source of said oxidizing gas; and

a mount for positioning said igniter assembly adjacent said opening in said flare stack.

10. The apparatus of Claim 9, wherein said igniter assembly comprises  
15 an elongate tubular housing having a first end and a second end, said catalytic material being disposed in said tubular housing, said hydrogen-containing gas and said oxidizing gas being introduced into said first end of said housing, said hydrogen-containing gas being introduced under pressure into said tubular housing.

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11. The apparatus of Claim 10, wherein said catalytic material is in the form of a tube.

12. The apparatus of Claim 11, wherein said tube of catalytic material comprises a platinum group metal carried on a metallic foam structure.

13. The apparatus of Claim 11, wherein said source of hydrogen-  
5 containing gas comprises a feed tube, said feed tube having an end opening axially displaced from said tube of catalytic material and there is a Venturi-type tube attached to said tubular housing and facing said end opening of said feed tube.

10 14. The apparatus of Claim 9, wherein said source of air comprises ambient air.

15. The apparatus of Claim 9, wherein said source of air comprises forced air.

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16. The apparatus of Claim 9, wherein said mount comprises a bracket.

17. The apparatus of any of Claims 1 or 16, wherein said igniter  
20 assembly comprises an elongate tubular housing, said catalytic material being disposed in said tubular housing, said hydrogen-containing gas being introduced under pressure into said tubular housing at a pressure of between 0.1 and 3 psi.

18. The apparatus of Claim 17, wherein said catalytic material is in the form of a tube.

19. An igniter assembly comprising:

5 a tubular housing having a first end and a second end;

a catalytic material disposed in said tubular housing, said catalytic material comprising a substance which reacts with a hydrogen-containing gas in the presence of an oxidizing gas to produce an exothermic reaction and a temperature sufficient to cause auto ignition of the hydrogen in said hydrogen-  
10 containing gas;

a source of hydrogen-containing gas, said source of hydrogen-containing gas comprising a tubular section for introducing said hydrogen-containing gas into said first end of said tubular housing; and

a source of oxidizing gas for admixing with said hydrogen-containing gas.

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20. The igniter assembly of Claim 19, wherein said catalytic material is in the form of a tube disposed in said tubular housing.